Remarks

Claims 1-53 are pending in the application. Claim 29 is allowed and claims 3-14, 17-28, 34-41 and 49-53 are objected to but indicated as allowable if rewritten. The Applicants would like to thank the Examiner for the indication of the allowable and allowed subject matter. Claims 1, 2, 15, 16, 30-33 and 42-48 are rejected.

Rejections Under 35 U.S.C. §102

Claims 1, 2, 15, 16, 30-33 and 42-48 are rejected under 35 U.S.C. §102(b) as being anticipated by Jeckeln et al., U.S. Patent No. 6,072,364. Of the rejected claims, claims 1, 15, 30, 42 and 47 are independent claims. Applicants have amended those independent claims to further clarify the invention and thus, asserts that the claims are in an allowable form.

In particular, with respect to claim 1, that claim has been amended and now recites that the data structure includes a first pair of lookup tables configured for storing amplitude and phase correction factors that compensate for amplitude and phase non-linearities in the responses of both the RF power amplifier and the vector modulator. That is the look-up table pair accounts for the non-linearities of both circuits, the amplifier and the vector modulator. Claim 1 further recites that the data structure includes a second pair of lookup tables configured for storing correction factors to compensate for memory effects in the response of the RF power amplifier. In that regard, claim 1 has incorporated certain limitations from allowed claim 3 directed to the second pair of lookup tables with correction factors to compensate for

19

memory effects of the RF amplifier.

The Jeckeln et al. reference, while teaching a lookup table to address non-linearities in an amplifier, does not provide a specific teaching with respect to a single pair of lookup tables which has correction factors which compensate for amplitude and phase non-linearities in the responses of both the RF power amplifier and the vector modulator. As noted in the prior art, it is generally a solution to utilize one set of tables for the amplifier and a second set of lookup tables to address non-linearities with the vector modulator. In any case, the Jeckeln et al. reference does not teach the invention as recited in claim 1, as it does not disclose use of a first pair of lookup tables to compensate for amplitude and phase non-linearities in the response of both the RF power amplifier and vector modulator and also a second pair of lookup tables configured to compensate for memory effects in the response of the RF power amplifier in combination with the first pair of lookup tables. Accordingly, because the Jeckeln et al. reference does not teach all the limitations as recited in claim 1, it cannot anticipate claim 1 under Section 102 of The Patent Statute. Claim 1 is therefore allowable.

Claim 2 is also allowable for the same reasons discussed above, because it depends from claim 1. Also, claim 2 recites the unique combination of elements not taught by Jeckeln et al.

Claim 15 has been amended somewhat similarly to claim 1 and thus includes the limitations of a data structure that includes a first pair of lookup tables configured for compensating amplitude and phase non-linearities in the response of both the RF

20

power amplifier and the modulator together. Furthermore, a second pair of lookup tables is recited in combination to compensate for memory effects in the response of the RF power amplifier. To that end, claim 15 incorporates various limitations from allowable claim 17. As noted above, the Jeckeln et al. reference does not teach all the limitations recited in claim 15 and thus, cannot anticipate claim 15 under §102(b). Therefore, claim 15 and claim 16 which depends therefrom is allowable. Furthermore, claim 16 recites a unique combination of elements which is not taught by the Jeckeln et al. reference.

With respect to claim 30, claim 30 recites a data structure and has been amended to further clarify the data structure. Specifically, the data structure is recited including a circuit configured to receive scaling factors. The circuit is further configured to use the received scaling factors and a polynomial to calculate the correction factors within the data structure and populate the lookup tables. There is absolutely no teaching in Jeckeln et al. with respect to the invention as claimed in claim 30. Specifically, there is no discussion in Jeckeln et al. with respect to calculating the correction factors within the data structure when scaling factors are received by the data structure, and wherein those scaling factors are used with a polynomial to calculate the correction factors. Accordingly, there is absolutely no teaching in Jeckeln et al. with respect to all of the elements recited in claim 30. As noted in the pending application, such a data structure as recited in claim 30 addresses the problems associated with the processing time required to load and correction factors directly into the data structure. Accordingly, claim 30 is allowable

21

over the Jeckeln et al. reference as are the dependent claims 31-33. Furthermore, dependent claims 31-33 recite unique combinations of elements not anticipated by Jeckeln et al.

Claim 42 has further been amended along the lines of claim 30 to recite the method steps of transferring scaling factors into a data structure and then calculating those correction factors that correct for memory effects utilizing the scaling factors and a polynomial. For the same reasons as noted above with respect to claim 30, as well as other reasons, the Jeckeln et al. reference does not anticipate claim 42 and that claim is allowable.

Finally, claim 47 has been amended along the lines of claim 1 to recite the steps of storing correction factors that correct for non-linearities in the response of both the RF power amplifier and the vector modulator, and also calculating correction factors that correct for memory effects in the response of RF power amplifier wherein the various corrections are stored in a first pair of lookup tables and a second pair of lookup tables respectively. For the reasons discussed herein above with respect to claim 1, the Jeckeln reference does not anticipate claim 47. Accordingly, claim 47 is allowable. Claim 48 has been cancelled.

Claims 1-2, 15-16, 30-33 and 42-48 are also rejected over the reference of Wright et al U.S. Patent No. 6,388,513.

With respect to claim 1, while the Wright at al reference discloses a look-up table which incorporates compensation parameters that address both a pre-

22

distortion filter and an I.Q. modulator correction circuit, the Wright et al reference does not teach the invention as now recited in claim 1 which utilizes a data structure including a first pair of look-up tables configured for storing amplitude and phase correction factors compensating for amplitude and phase non-linearities in the response of <u>both</u> the RF power amplifier and the vector modulator in combination with a second pair of look-up tables configured for storing correction factors to compensate for memory effects in the response of the RF power amplifier. As noted above, claim 1 has incorporated various limitations from allowable claim 3. Wright et al does not teach all of the limitations recited in claim 1, therefore claim 1 is not anticipated by Wright et al and is allowable. Claim 2 is also allowable for that reason, and also for the reason that it recites a unique combination of elements not taught by Wright et al.

A similar argument holds true for claim 15 which is similarly amended to recite a first pair of look-up tables to address the amplitude and phase non-linearities for <u>both</u> the RF power amplifier and the modulator and a second pair of lookup tables configured for storing correction factors to compensate for memory effects in the RF power amplifier. Similarly, claims 15 and 16 are in an allowable form and are not anticipated by Wright et al. Furthermore, claim 16 recites the unique combination of elements not taught by the cited art.

With respect to claim 30, there is no teaching in Wright et al with respect to a data structure that receives scaling factors and is configured to use the received

23

scaling factors and a polynomial to calculate the correction factors within the data structure and thereby populate the look-up tables. Accordingly, Wright et al does not anticipate the invention as recited in claims 30-33. Furthermore, claims 31-33 are dependent claims which recite unique combinations of elements not anticipated by Wright et al.

Turning now to claim 42 that claim has further been amended along the lines of claim 30 and thus for the same reasons discussed above is not anticipated by Wright et al. Specifically, Wright et al does not teach a method of transferring scaling factors into a data structure and calculating, in the data structure, correction factors utilizing the scaling factor and a polynomial. Claims 43 and 44 are canceled and the remaining claims 45-46 depend from claim 42 and thus would also be allowable and for that reason, in addition to the fact that those dependent claims also recite unique combination of elements not anticipated by the cited art.

Finally, with respect to claim 47, that claim has been further amended to incorporate several limitations from allowable claim 49 and to recite a method of predistorting a signal including calculating, in the data structure, correction factors that correct for memory effects and storing the correction factors in a second pair of look-up tables wherein a first pair of look-up tables includes correction factors that correct for non-linearities of both a power amplifier and a vector modulator. Such method steps of utilizing the various correction factors as recited, as well as calculating, in the data structure, correction factors to correct for memory effects of

24

the RF power amplifier, are not taught in Wright et al. Accordingly, claim 47 is also in an allowable form.

Accordingly, all the pending claims are in allowable form and the Applicant respectfully requests an indication of their allowability at the Examiner's earliest convenience.

New Claims

Dependent claims 10 and 24 have been rewritten to incorporate their base independent claim as well as other limitations and Applicant submits that such claims are in allowable form over the cited art, as neither Jeckeln et al or Wright et al anticipates the recited predistorter of claim 10 and the amplifier system of claim 24.

Allowable Claims

Allowable claims 3-14, 17-28, 34-41 and 49-53, to the extent they are still pending, all depend from allowable independent claims and are thus also allowable.

Accordingly, the pending claims are all completely in an allowable form. Therefore, a Notice of Allowance is respectfully requested at the Examiner's earliest convenience. If any issues remain in the case which might be handled in an expedited fashion, such as through an Examiner's amendment, the Examiner is certainly encouraged to telephone the Applicants' undersigned representative. Furthermore, if the claims appear to be otherwise allowable the Examiner can contact the Applicants' undersigned representative who will provide a suitable Terminal Disclaimer to address those claims rejected under obviousness-type

25

double patenting.

■ ■

26

Applicants are of the opinion that an additional fee of Four Hundred

Dollars ($400.00) is due as a result of this amendment. Attached is Fee Transmittal

For FY 2005 authorizing that the $400.00 fee be charged to Deposit Account No. 23-

3000. If any further charges or credits are necessary to complete this

communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.

By _____

Kurt A. Summe
Reg. No. 36,023

KAS:khb
2700 Carew Tower
Cincinnati, OH 45202
(513) 241-2324
(513) 421-7269 (facsimile)

27